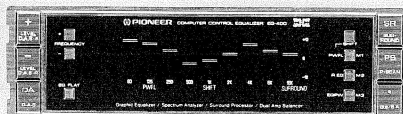




PIONEER®
The future of sound and vision.

Service Manual



ORDER NO.
CRT1106

COMPONENT CAR STEREO GRAPHIC EQUALIZER

EQ-400

EW

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SPECIFICATIONS

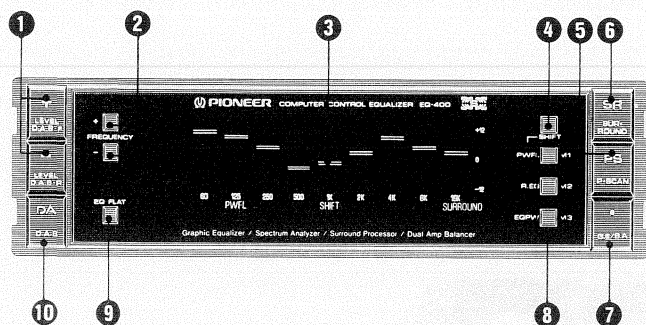
Power source	DC 14.4 V (10.8—15.6 V allowable)
Grounding system	Negative type
Dimensions	180(W) × 50(H) × 150(D) mm
Weight	0.9 kg
Equalization frequency	60 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz
Gain	—2 dB
Equalization range	±12 dB
Frequency response	20—30,000 Hz (±3 dB)
Distortion	0.06% (1 kHz, 70 mV)
Signal-to-noise ratio	85 dB (IEC-A network)
Input impedance	22 kΩ
Output impedance	1 kΩ
Max. output level	200 mV/1 kHz, 1% THD

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

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1. NOMENCLATURE AND USE



① Level Up (+), Down (-)/Dual-amp Balance Adjust Button

Level Up (+), Down (-) Buttons

Used to adjust graphic equalizer levels. Pressing the (+) button raises the level, while pressing the (-) button lowers the level. Adjustments are made after pressing the frequency select button to cause the selected frequency to flash. Only the frequency that is flashing can be adjusted.

Dual-amp Balance Adjust Button

Adjusts the front and rear speaker volume for a 2-amp, 4-speaker system. Pressing the dual-amp balance button causes a dual-amp balance adjust display to appear. Pressing the (+) button while this display is shown reduces output from the rear speaker until output is being produced by the front speaker only. Pressing the (-) button while this display is shown reduces output from the front speaker until output is being produced by the rear speaker only.

② Frequency Select Button

Used to select the frequency when adjusting the graphic equalizer level. Pressing the (+) button makes the frequency higher, while (-) button makes the frequency lower.

③ Display

④ Shift Button

Switches between the factory preset curves and user preset curves. Pressing this button causes "SHIFT" to appear on the display, allowing selection of factory preset curves.

⑤ Preset Scan Button

Sequentially recalls 6 types of preset curves (at approximately 4-second intervals). Pressing again while any preset curve is recalled selects that preset curve.

⑥ Surround Button

Activates the surround function

- The surround effect can only be obtained with a 2-amp, 4-speaker system and not with a 2-speaker system.

⑦ Display Select Button

Each press of this button switches the display in the following sequence: GRAPHIC EQUALIZER → SPECTRUM ANALYZER (PEAK HOLD) → SPECTRUM ANALYZER (SYMMETRIC)

⑧ Equalizer Preset Button

Up to 3 equalizer curves (user preset curve) can be assigned to this button making it possible to later select a curve by simply pressing the button. This button is also pressed after the shift button ("SHIFT" appears on display) to select one of 3 factory preset curves.

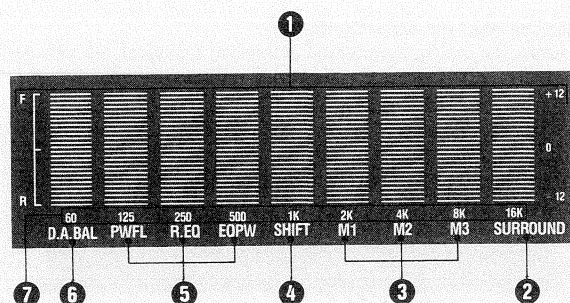
⑨ Flat Curve Button

Pressing this button produces an uncompensated equalizer curve.

⑩ Dual-amp Balance Button

Switches to dual-amp balance adjust display. The dual-amp balance adjust button can be used to adjust the volume of the front and rear speakers. Pressing again or leaving for approximately 10 seconds after adjustment returns the display to its original status.

• Reading the Displays

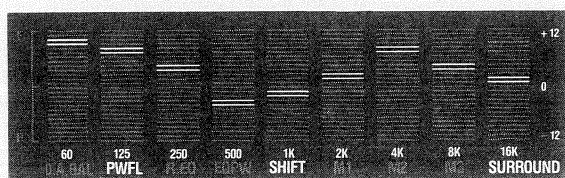


1 Graphic Equalizer/Spectrum Analyzer/Dual-amp Balance Adjust Display

Each press of the display select button causes the display contents to change as illustrated A, B, and C below. Display D is produced by pressing the dual-amp balance button.

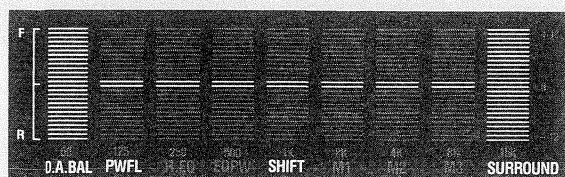
A: Graphic Equalizer Display

Levels are shown divided among 9 frequencies. The level indicated by the green lines on the display are the uncompensated levels, while red indicates high level and blue indicates low level.



D: Dual-amp Balance Adjust Display

Pressing the dual-amp balance button changes to the dual-amp balance adjust display, and pressing again returns to the original display. The display indicates that the front and rear speaker volume levels are equal when the bar is at the center position. The front speaker output gets higher when the bar is moved toward F, while the rear speaker output gets higher when the bar is moved toward R.



2 Surround Display

Appears on and disappears from the display when the surround button is pressed.

3 User Preset Display

Displays the button pressed when a user preset curve is selected after pressing the equalizer preset button.

4 Shift Display

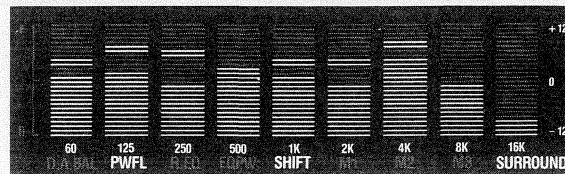
Appears on and disappears from the display when the shift button is pressed.

5 Factory Preset Curve Display

Displays the button pressed when a factory preset curve is selected after pressing the equalizer preset button.

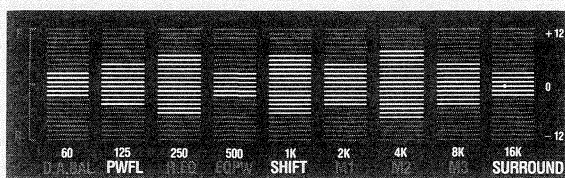
B: Spectrum Analyzer (Peak Hold) Display

The power levels of the 9 frequency divisions are momentarily held and displayed.



C: Spectrum Analyzer (Symmetric) Display

The power levels of the 9 frequency divisions are divided into upper and lower along the center on the display.

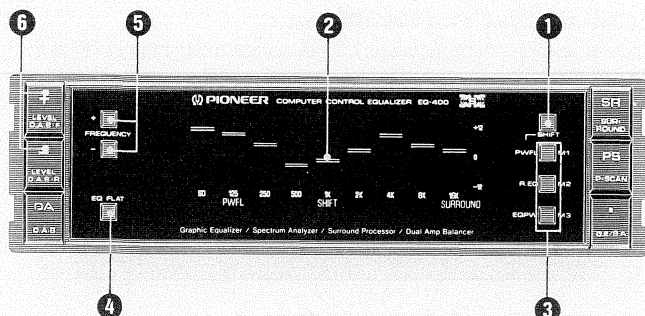


6 Dual-amp Balance Display

Appears on and disappears from the display when the dual-amp balance button is pressed.

7 Frequency Display

• Using the Graphic Equalizer

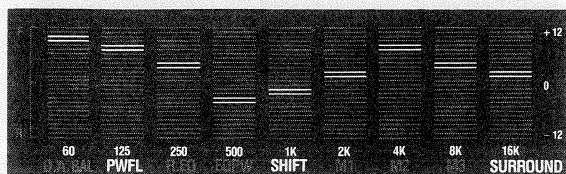


Factory Preset Curves

1. Press the shift button **1** and "SHIFT" appears on the display **2**.
2. Press the PWFL, R.EQ, EQPW equalizer preset buttons **3** or flat curve button **4** to select one of the following equalizer curves.

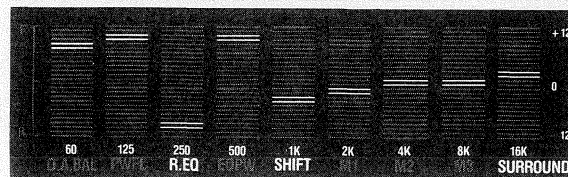
PWFL: Powerful Curve

Enhances the low and high ranges to produce a powerful curve.



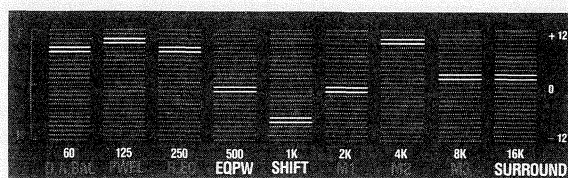
R.EQ: Rear speaker Equalizer Curve

Compensates for the frequency characteristics inside of the vehicle to produce the equivalent of a flat curve (in most vehicles).



EQPW: Equalizer Powerful Curve

Compensates for the frequency characteristics inside of the vehicle while enhancing the low and high ranges to produce a powerful sound.



EQ FLAT: Flat Curve

An uncompensated flat curve that can be used as a reference to determine the effects of the other curves. The flat curve can be recalled regardless of the ON/OFF status of the shift button.

Forming Equalizer Curves

1. Press the frequency select button **5** and adjust to the desired frequency (level indicator blinks on display **2**). Pressing the (+) button increases the frequency, while the (-) button decreases the frequency.
 2. Use the level up (+)/down (-) buttons **6** to set the frequency to the desired level.
- Repeat steps 1 and 2 to adjust the other frequencies.
 - User preset curves based on a factory preset curve by first calling the desired factory preset curve.

Recording to Memory

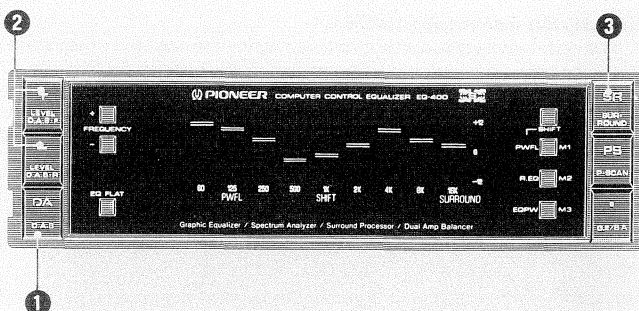
Once an equalizer curve is created, the following operation is used to assign the curve to preset buttons M1 through M3

3. Press the shift button **1** and "SHIFT" disappears on the display **2**.
 4. Press and hold down one of the equalizer curve preset buttons (M1 – M3) until a beep is heard (approximately 2 seconds). This signals that the curve has been stored in memory under the preset button pressed.
- The procedure outlined above can be used to create and store up to 3 equalizer curves.

Note:

- Changes in low pitched sounds may not be discernible even when the 60 Hz frequency level is adjusted if the program source does not include components in the 60 Hz vicinity or if the small diameter speakers are used.
- Changes in high pitched sounds may not be discernible even when the 16 kHz frequency level is adjusted if the program source does not include components in the 16 kHz vicinity.

• Surround Function



The surround function provides powerful concert hall ambience, giving the feeling of sitting in the center of a concert hall or sound studio.

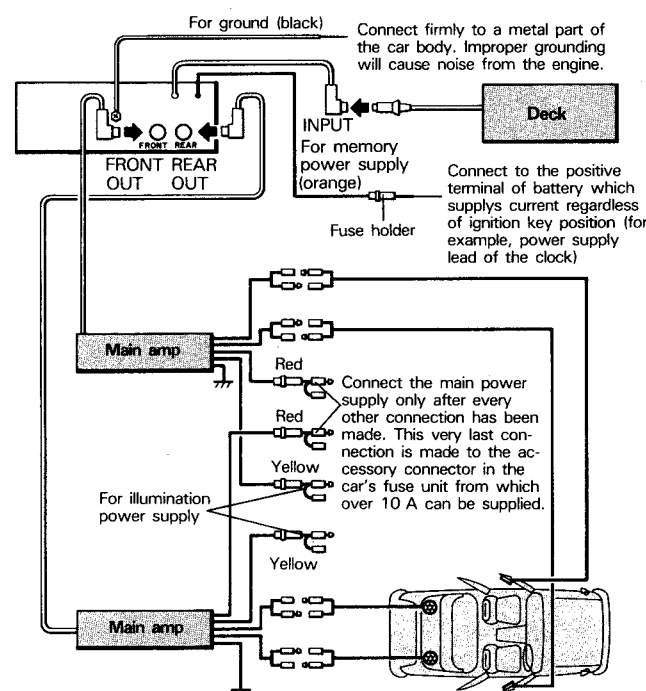
The following procedure allows the most effective use of the surround system:

1. Adjust the front and rear speaker volume to the same levels using the dual-amp balance button **1** and dual-amp balance adjust button **2**.
 2. Press the surround button **3**.
 3. The rear speaker volume level may increase with certain sources. At this time, reduce the rear speaker volume level using the dual-amp balance button **1** and dual-amp balance adjust button **2**.
- The surround effect can only be obtained with a 2-amp, 4-speaker system and not with a 2-speaker system.
 - The surround effect cannot be obtained with a monaural source
 - Left/right volume balance of the rear speakers cannot be adjusted while the surround function is being used.
 - The effectiveness of the surround function depends upon the source.

2. CONNECTIONS

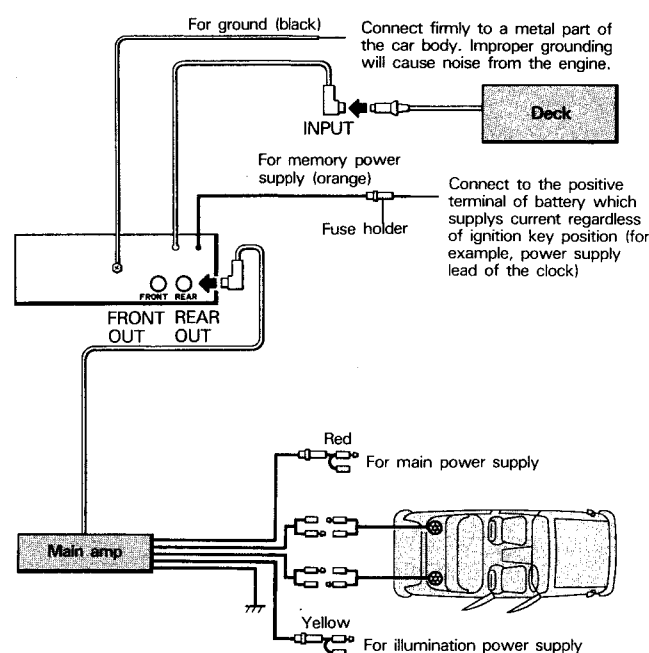
4-Speaker System

- Grounding of both main amps is required when two main amps are used.



2-Speaker System

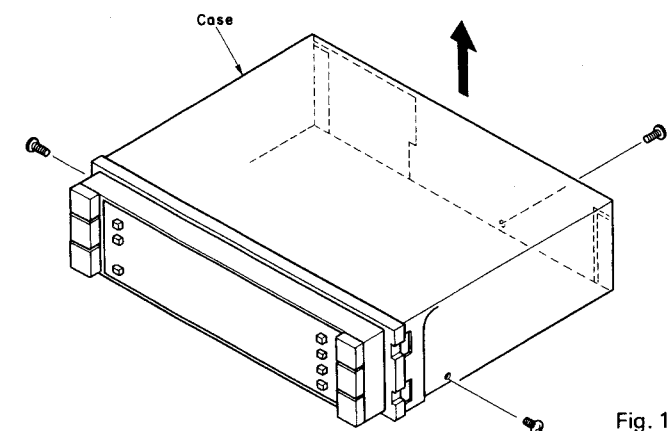
- In a 2-speaker system, wire the rear output terminal to the main amp.



3. DISASSEMBLY

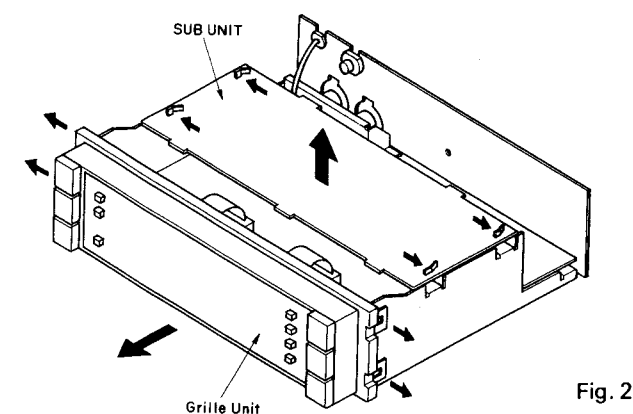
• Removing the Case

- Remove the three fastening screws and then remove the case.



• Removing the Grille Unit

- Remove the grille unit tab and pull the grille straight out.

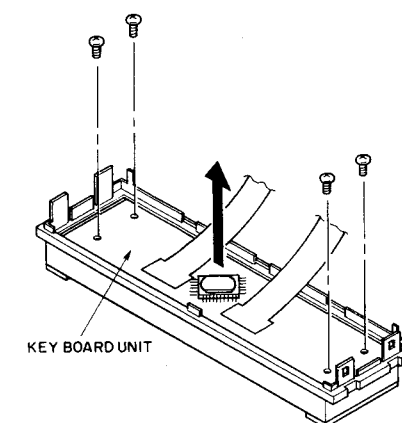


• Removing the Sub Unit (Fig. 2)

- Unbend the four tabs and lift up the sub unit.

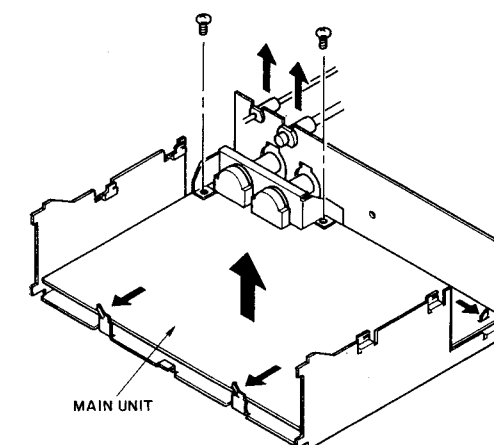
• Removing the Key Board Unit

- Remove the four fastening screws and lift up the key board unit.



• Removing Main Unit

- Remove the two fastening screws.
- Unbend the three tabs and lift up the main unit.



4. BLOCK DIAGRAM

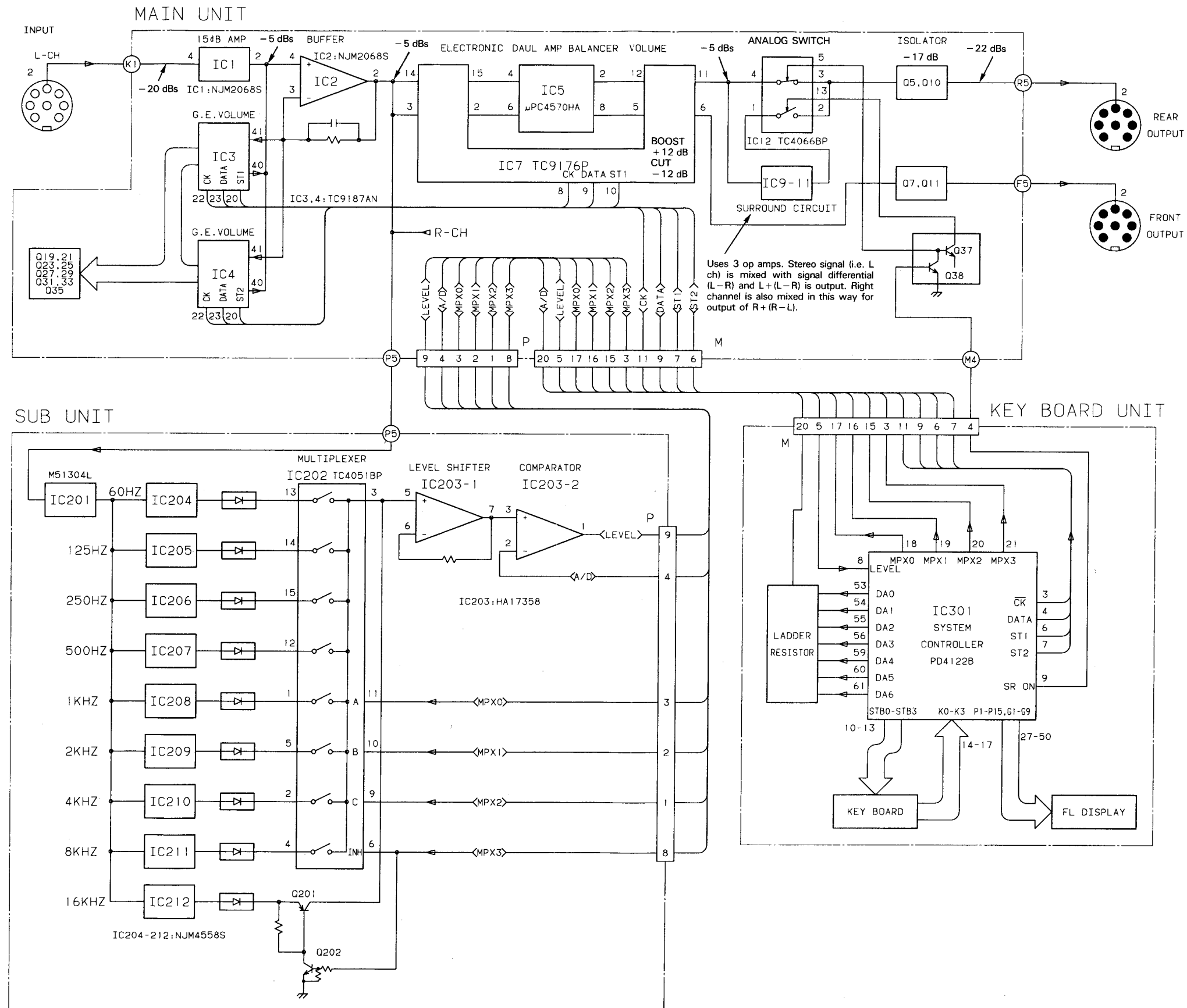
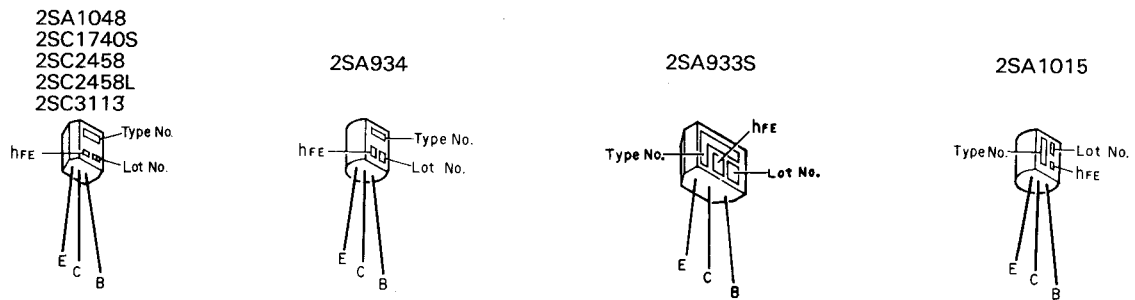
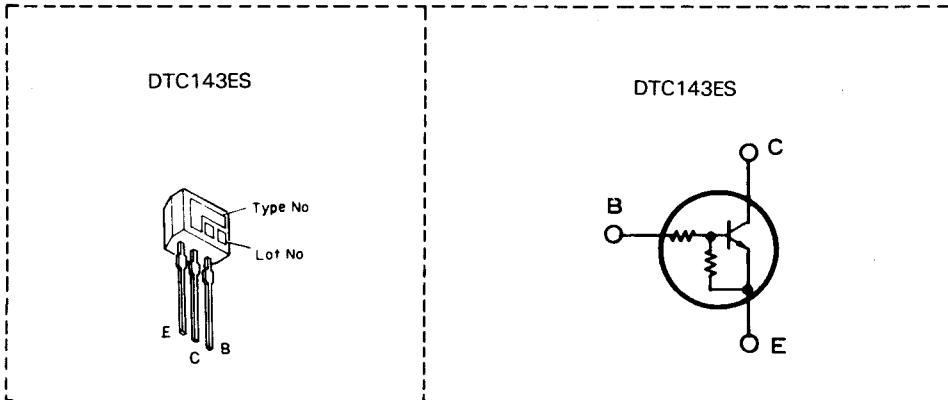


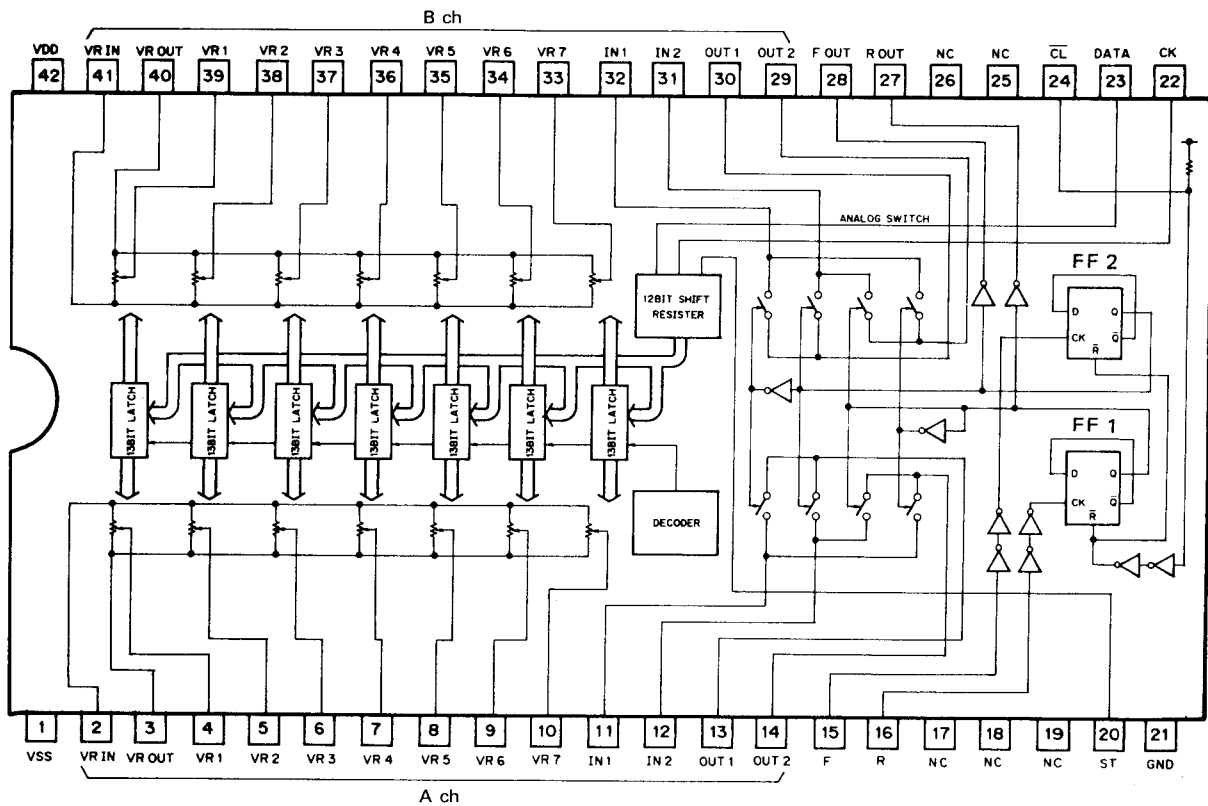
Fig. 5

• ICs and Transistors



• Main Unit

IC3, 4: TC9187AN

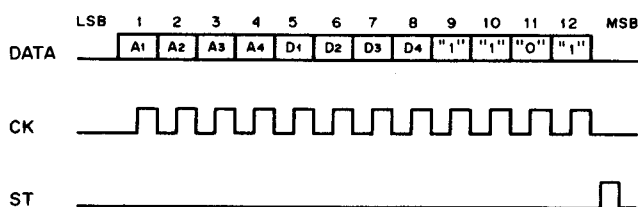


• Pin Functions: (TC9187AN)

Pin	Pin Name	Function and Operation
2 41	(A) VR _{IN} (B)	Common input pin for each volume control
3 40	(A) VR _{OUT} (B)	Common output pin for each volume control
4 39	(A) VR ₁ (B)	Common pin for volume control 1 60 Hz
5 38	(A) VR ₂ (B)	Common pin for volume control 2 125 Hz
6 37	(A) VR ₃ (B)	Common pin for volume control 3 250 Hz
7 36	(A) VR ₄ (B)	Common pin for volume control 4 500 Hz
8 35	(A) VR ₅ (B)	Common pin for volume control 5 1 kHz
9 34	(A) VR ₆ (B)	Common pin for volume control 6 3.5 kHz
10 33	(A) VR ₇ (B)	Common pin for volume control 7 10 kHz
11 32	(A) IN ₁ (B)	Input pin for the analog switch matrix (Input pin for signals that by-pass the EQ circuit.)
12 31	(A) IN ₂ (B)	Input pin for the analog switch matrix (Input pin for signals that pass through the EQ circuit.)
13 30	(A) OUT ₁ (B)	Front output pin Front output pin
14 29	(A) OUT ₂ (B)	Rear output pin Rear output pin
15	F	Input pin for analog switch control (Turns the front equalizer circuit on and off)
16	R	Input pin for analog switch control (Turns the rear equalizer circuit on and off)
17–19 25–28		Not in use
20	ST	Strobe input pin. Control data at the CK pin and DATA pin is latched when this pin goes HIGH.
22	CK	Clock input pin. Fetches control data
23	DATA	Control data input pin. Control data is made up of 12 bits.
24	$\overline{\text{CL}}$	Clear input pin for the analog switch matrix. Turns the equalizer circuit off at a LOW level input.
1 21 42	V _{DD} GND V _{SS}	Power supply pin

*Pins 15 and 16 are active HIGH. The states of FF1 and FF2 are reversed at the leading edge of these pins and turns the circuit on and off.

• Control Data Format



a) A1-A4 (bits 1-4)

Data bits 1-4 select one of the seven volume control circuits denoted VR1-VR7.

A1	A2	A3	A4	Volume
H	L	L	H	VR ₁
L	H	L	H	VR ₂
H	H	L	H	VR ₃
L	L	H	H	VR ₄
H	L	H	H	VR ₅
L	H	H	H	VR ₆
H	H	H	H	VR ₇

b) D1-D4 (bits 5-8)

Data bits 5-8 set each volume step. Data bits 5-8 control the volume selected by A1-A4 in 13 steps.

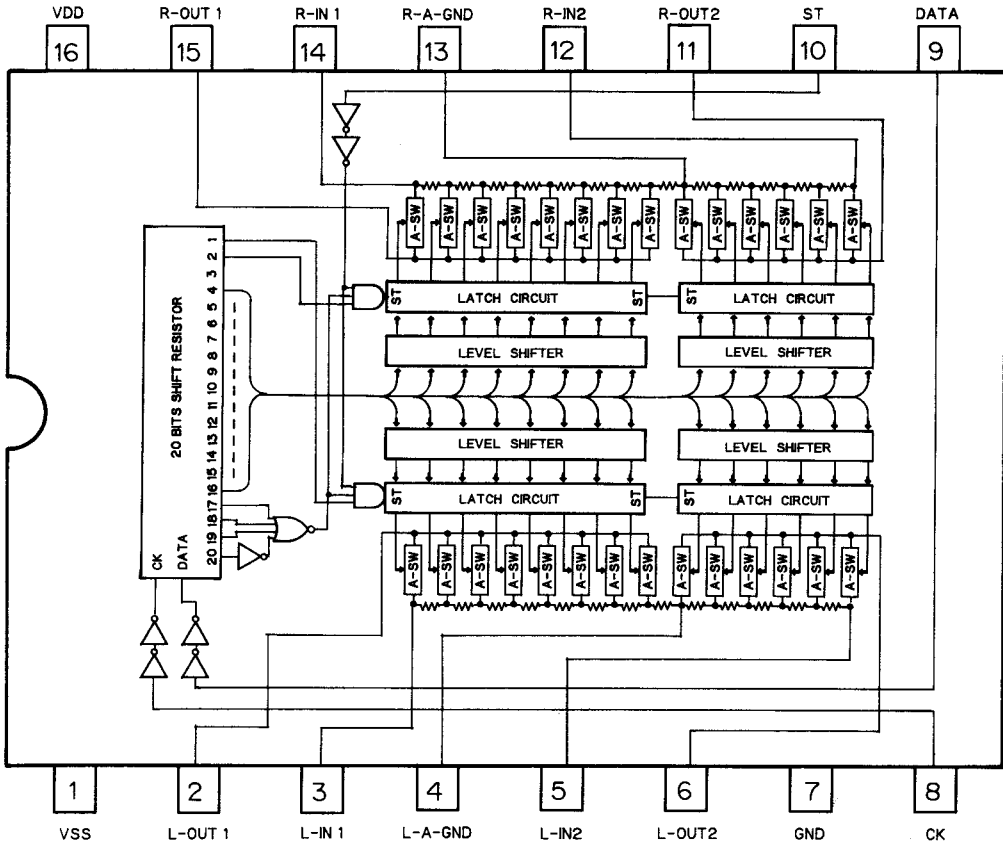
D1	D2	D3	D4	Step
L	H	H	L	+6 (+12 dB)
H	L	H	L	+5 (+10 dB)
L	L	H	L	+4 (+8 dB)
H	H	L	L	+3 (+6 dB)
L	H	L	L	+2 (+4 dB)
H	L	L	L	+1 (+2 dB)
L	L	L	L	0 (0 dB)
H	H	H	H	-1 (-2 dB)
L	H	H	H	-2 (-4 dB)
H	L	H	H	-3 (-6 dB)
L	L	H	H	-4 (-8 dB)
H	H	L	H	-5 (-10 dB)
L	H	L	H	-6 (-12 dB)

c) Codes Bits (bits 9-12)

Data bits 9-12 must match the codes for TC9187AN. Data is received only when these bits are as shown below.

9	10	11	12
H	H	L	H

IC7, 8: TC9176P



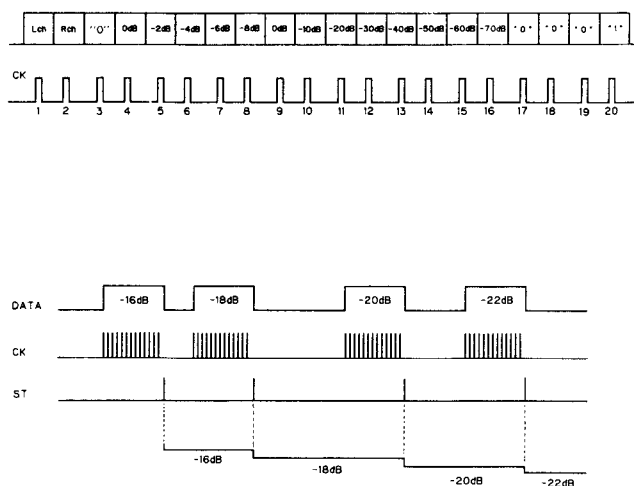
- **Pin Functions: (TC9176P)**

Terminal	Name	I/O	Function and operation
2 15	L-OUT1 R-OUT1	Output	10 dB step attenuator output Signal with IN is attenuated from 0 to 70 dB in B steps at the 10 dB step.
3 14	L-IN1 R-IN1	Input	10 dB attenuator input
4, 13	A-GND		AC ground terminal.
5 12	L-IN2 R-IN2	Input	2 dB attenuator input
6 11	L-OUT2 R-OUT2	Output	2 dB attenuator output Signal with IN is attenuated from 0 to 8 dB in 5 steps at the 2 dB step.
9	DATA	Input	Data input of attenuation amount and channel selection Consisting of 20 bits, it is input by the CK signal.
8	CK	Input	Clock input Clock input to fetch data of the DATA terminal.
10	ST	Input	Strobe input Attenuation amount and channel selection data fetched from the DATA and CK terminal can be latched by having this terminal set to "H" level. If "H" level is not applied to this terminal, the previous data will be in effect.
16	VDD		(+) power applied terminal
7	GND		Ground terminal
1	VSS		(-) power applied terminal

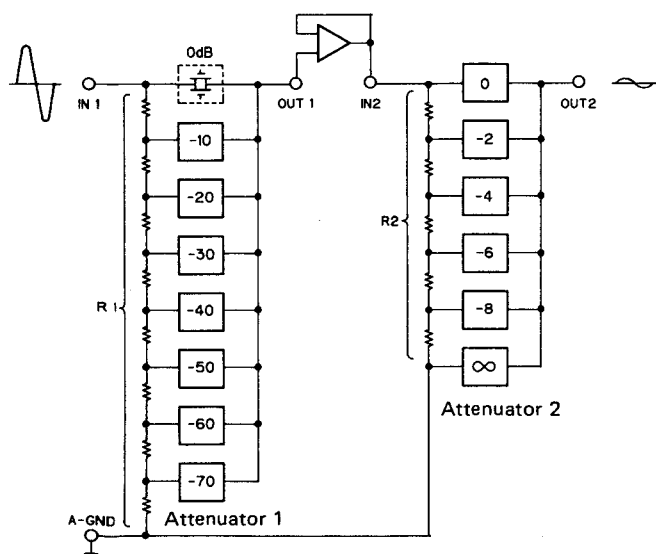
The TC9176P is a built-in electronic volume IC for loudness ON/OFF. The attenuation volume data output by the system controller (IC301), is input to the DATA, CK, and ST terminals. The data consists of 20 bits. It consists of the following.

Bit	Description
1, 2	Selection of L channel, R channel
3	Always "0"
4 – 8	Setting of 2 dB step attenuator
9 – 16	Setting of 10 dB step attenuator
17 – 20	Chip select bit "0001" is select mode, for values other than this, there is no operation.

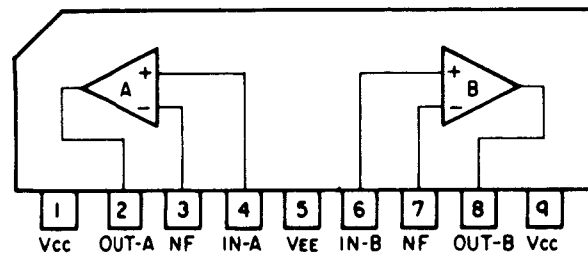
There will be infinite attenuation volume for -78 dB data. Therefore, step up from infinity to 1 will be -76 dB. Changes of the fetched data will all be synchronized with ST signal transition.



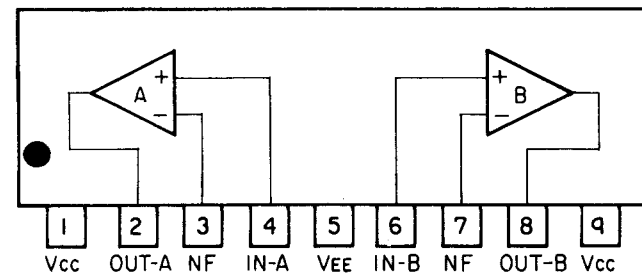
The attenuator section consists of a diffused resistor array and an analog switch. Attenuator 1 can attenuate 0 to 70 dB at 10 dB step, and attenuator 2 can attenuate 0 to 8 dB at 2 dB step, for a total attenuation of 0 to 76 dB at 2 dB step.



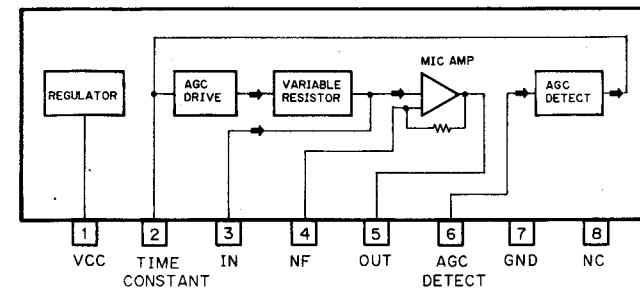
IC1, 2: NJM2068S



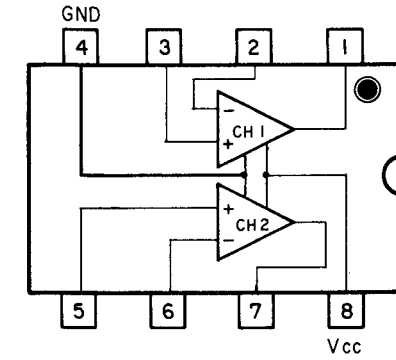
IC5, 6, 9-11: μ PC4570HA



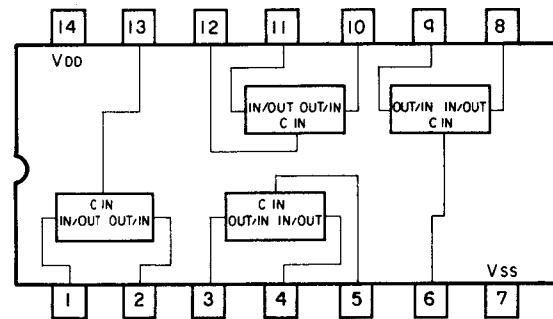
IC201: M51304L



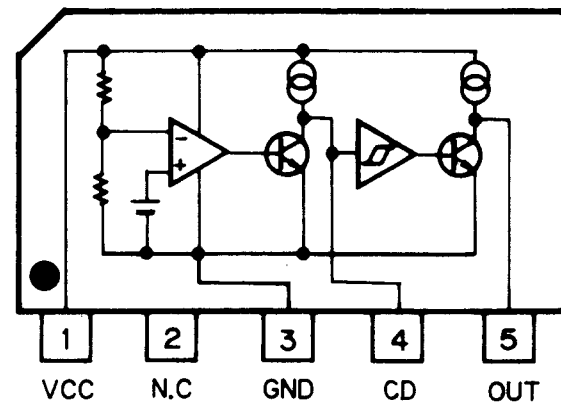
IC203: HA17358



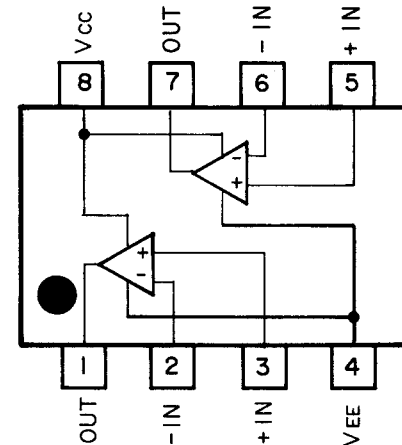
IC12: TC4066BP



IC13: M51954AL

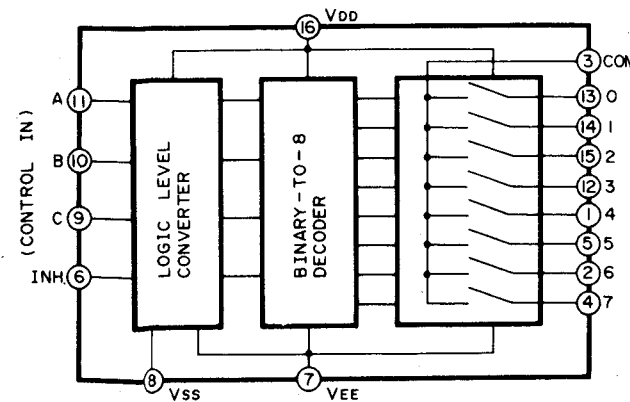
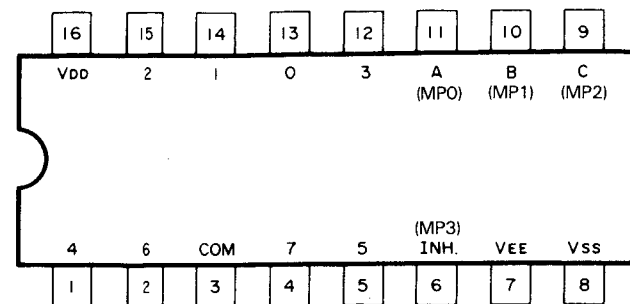


IC204-212: NJM4558S



• Sub Unit

IC202: TC4051BP



The TC4051BP is an 8 channel multiplexer capable of both selecting between the analog signal and digital signal and combining them. The switch corresponding to each of the 8 channels is turned on by the digital signal in the control pin.

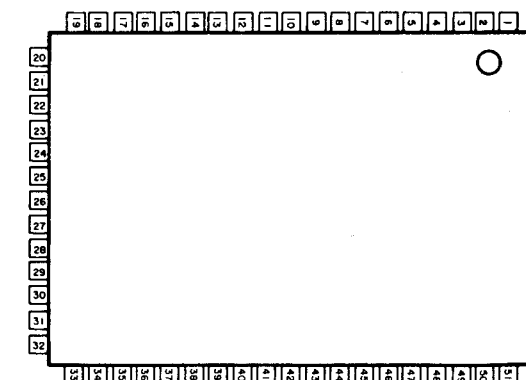
Control input signals				"ON" channel
INH	C	B	A	
L	L	L	L	0
L	L	L	H	1
L	L	H	L	2
L	L	H	H	3
L	H	L	L	4
L	H	L	H	5
L	H	H	L	6
L	H	H	H	7

When a HIGH level is input to INH, no channel turns on regardless of the state of the other inputs.

• Key Board Unit

IC's marked by *are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

IC301: PD4122B



• Pin Function

Terminal	Function
1	N
2	C
3	C
4	C
5	B
6	S
7	S
8	L
9	S
10	S
13	S
14	K
17	K
18	M
21	N
22	E
23	X
24	X
25	V
26	V
27	P
33	P
34	P
41	P
42	G
50	G
51	V
52	V
53	D
56	D
57	B
58	V

• Pin Functions: (PD4122B)

Terminal	Terminal Name	Input/Output	Function and Operation																																																		
1	NC		Not used																																																		
2	DIM	Input	Dimmer control input terminal. Dimmer ON when H level input.																																																		
3	CK	CMOS Output	Control data clock terminal. Output of electronic GEQ volume control data of synchronization clock.																																																		
4	DATA	CMOS Output	Control data terminal. Output of electronic GEQ volume control data.																																																		
5	BTB 1	Input	BT + B input terminal. Input of system power supply control. System switches ON with input of H level. Power is switched OFF and unit enters stand-by mode with change iron H level to L level.																																																		
6	ST1	CMOS Output	Electronic GEQ volume control data latch output terminals																																																		
7	ST2	CMOS Output																																																			
8	LEVEL	Input	Spectrum analyzer level input terminal. Input of spectrum analyzer display level comparator output.																																																		
9	SR	CMOS Output	Surround control output terminal. H when active.																																																		
10 13	STB0 STB3	CMOS Output	Strobe output terminal for key matrix. H when active.																																																		
14 17	K0 K3	Input	Input terminal for key matrix.																																																		
18 21	MPX0 MPX3	CMOS Output	B.P.F. switch data output terminal for spectrum analyzer																																																		
<div>MPX Control Data</div> <table><tr><th>B.P.F.</th><th>60 Hz</th><th>125 Hz</th><th>250 Hz</th><th>500 Hz</th><th>1 kHz</th><th>2 kHz</th><th>4 kHz</th><th>8 kHz</th><th>16 kHz</th></tr><tr><td>MPX0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td>MPX1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr><tr><td>MPX2</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr><tr><td>MPX3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>				B.P.F.	60 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	16 kHz	MPX0	0	1	0	1	0	1	0	1	0	MPX1	0	0	1	1	0	0	1	1	0	MPX2	0	0	0	0	1	1	1	1	0	MPX3	0	0	0	0	0	0	0	0	1
B.P.F.	60 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	16 kHz																																												
MPX0	0	1	0	1	0	1	0	1	0																																												
MPX1	0	0	1	1	0	0	1	1	0																																												
MPX2	0	0	0	0	1	1	1	1	0																																												
MPX3	0	0	0	0	0	0	0	0	1																																												
22	EVENT		Not used.																																																		
23 24	X2 X1	Output Input	Oscillation circuit output terminal Oscillation circuit input terminal																																																		
25	VSS		GND terminal																																																		
26	VDD		Power supply terminal																																																		
27 33	P1 P7	Output Pch Open Drain	FL display tube segment output terminal																																																		
34 41	P15 P8	Output Pch Open Drain	FL display tube segment output terminal																																																		
42 50	G1 G9	Output Pch Open Drain	FL display tube timing output terminal																																																		
51	VLOAD	Input	Display driver power supply terminal.																																																		
52	VPRE	Input	Pre-driver power supply terminal.																																																		
53 56	DA0 DA3	CMOS Output	A/D converter control output for spectrum analyzer																																																		
57	BTB2	Input	Stand-by cnacel interrupt input terminal. Stand-by mode cancelled with change iron L level to H level.																																																		
58	VDD		Power supply terminal																																																		

Terminal	Terminal Name	Input/Output	Function and Operation
59	DA4	CMOS Output	A/D converter control output for spectrum analyzer
61	DA6		
62	SR	CMOS Output	Surround control output terminal. L when active.
63	RESET	Input	Reset input terminal.
64	BFEP	CMOS Output	Key touch tone output terminal (4 kHz, 30 ms)

SPECTRUM ANALYZER A/D CONVERSION THRESHOLD VALUE

THRESHOLD VALUE							(HEX)	LEVEL	D/A Output (V)
DA6	DA5	DA4	DA3	DA2	DA1	DA0			
1	1	1	0	0	0	1	71	12	2.2
1	0	1	1	0	1	0	5A	11	1.76
1	0	0	1	0	0	0	48	10	1.41
0	1	1	1	0	0	1	39	9	1.11
0	1	0	1	1	0	1	2D	8	0.880
0	1	0	0	1	0	0	24	7	0.703
0	0	1	1	1	0	1	1D	6	0.566
0	0	1	0	1	1	1	17	5	0.449
0	0	1	0	0	1	0	12	4	0.352
0	0	0	1	1	1	0	0E	3	0.273
0	0	0	1	0	1	1	0B	2	0.215
0	0	0	1	0	0	1	09	1	0.176

y are very
uction.

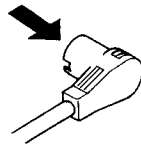
5. SCHEMATIC CIRCUIT DIAGRAM

A

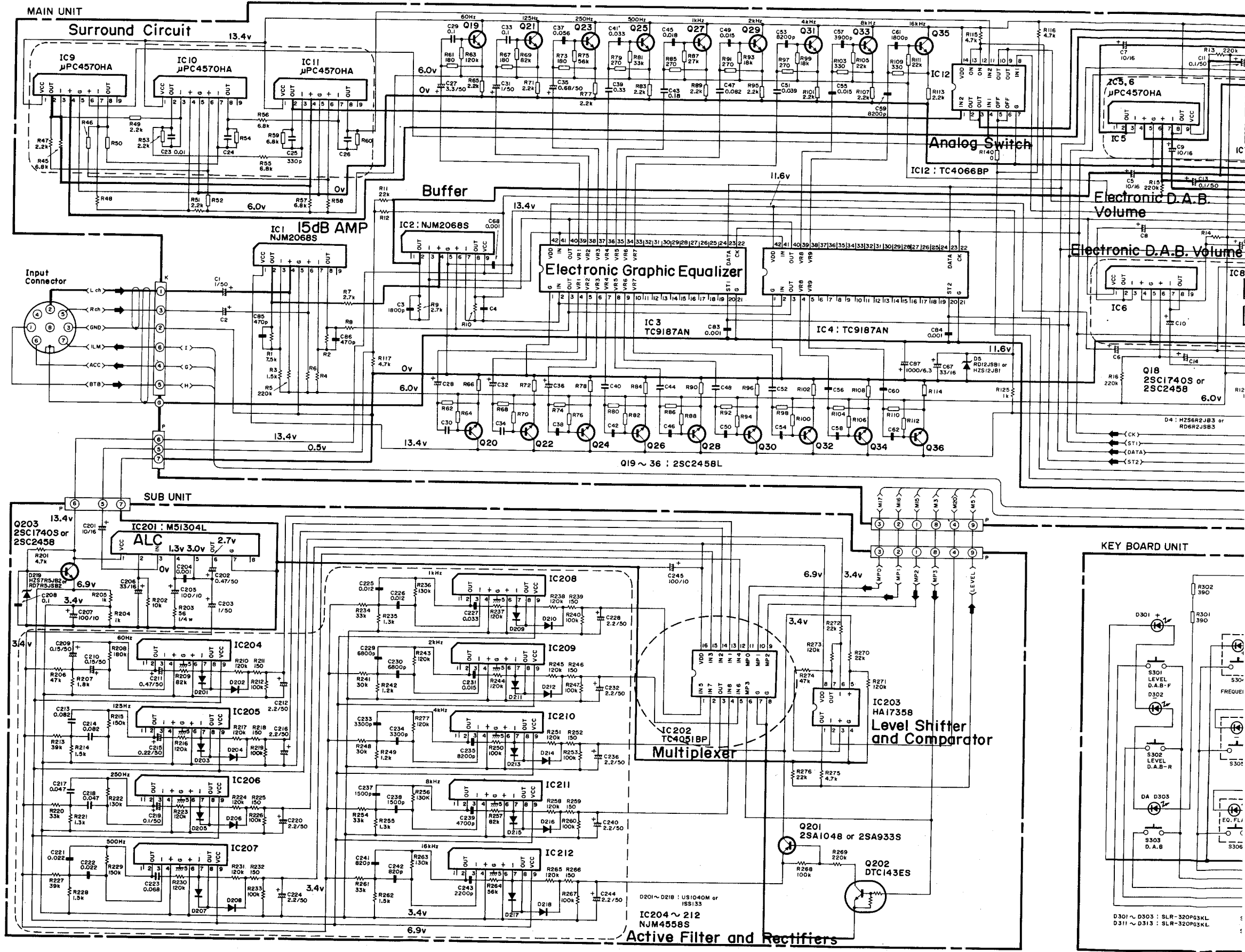
B

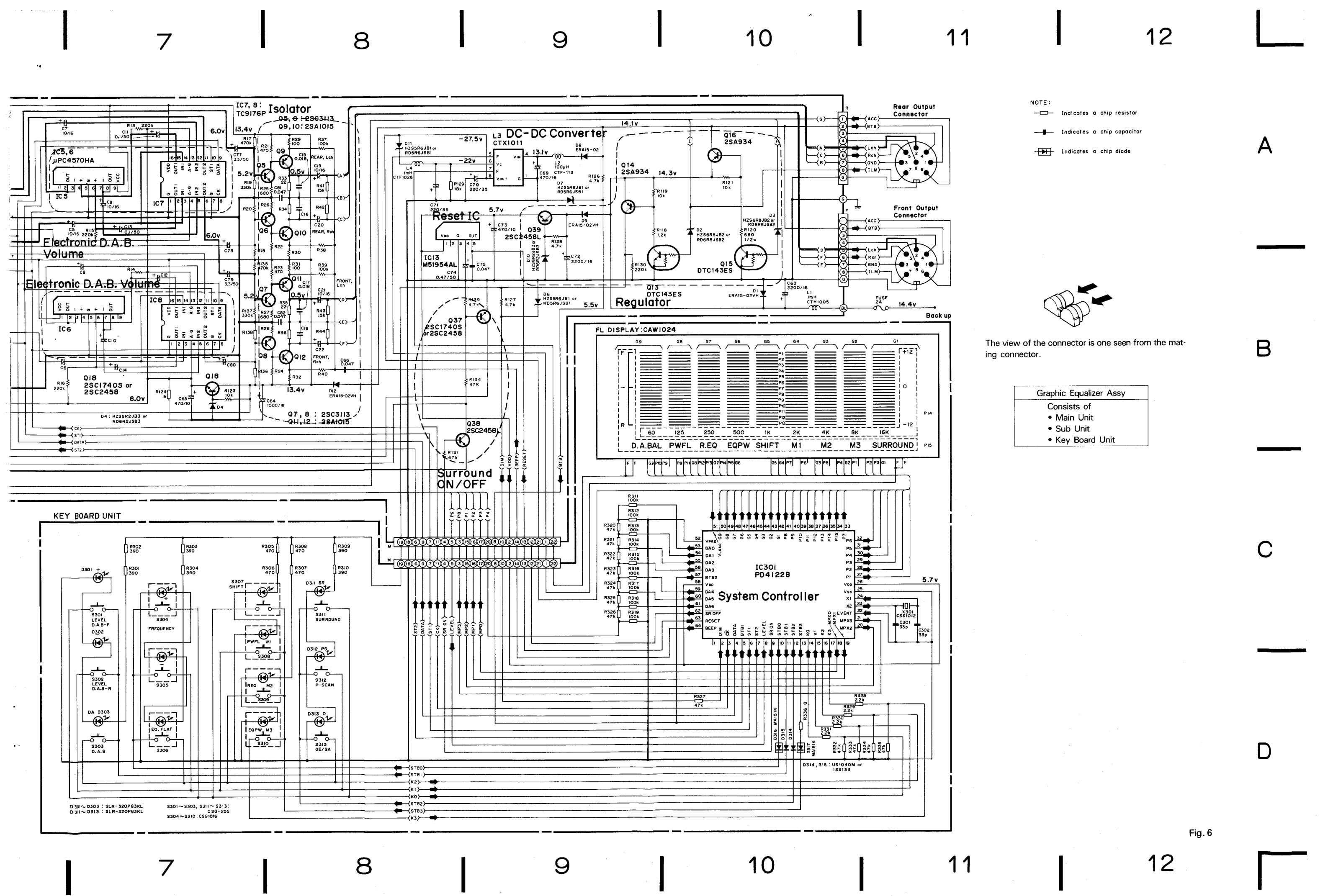
C

D



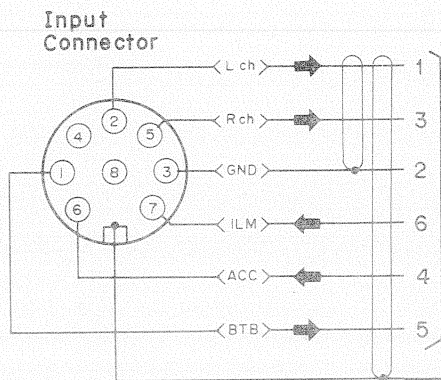
The view of the connector is one seen from the mating connector.





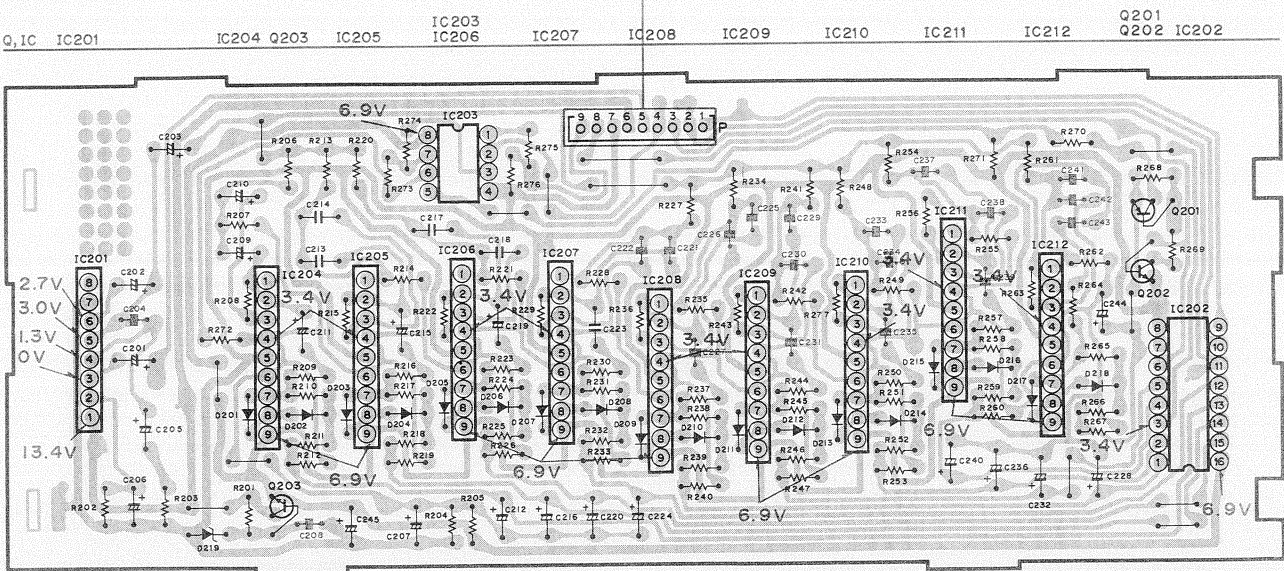
6. CONNECTION DIAGRAM

A



B

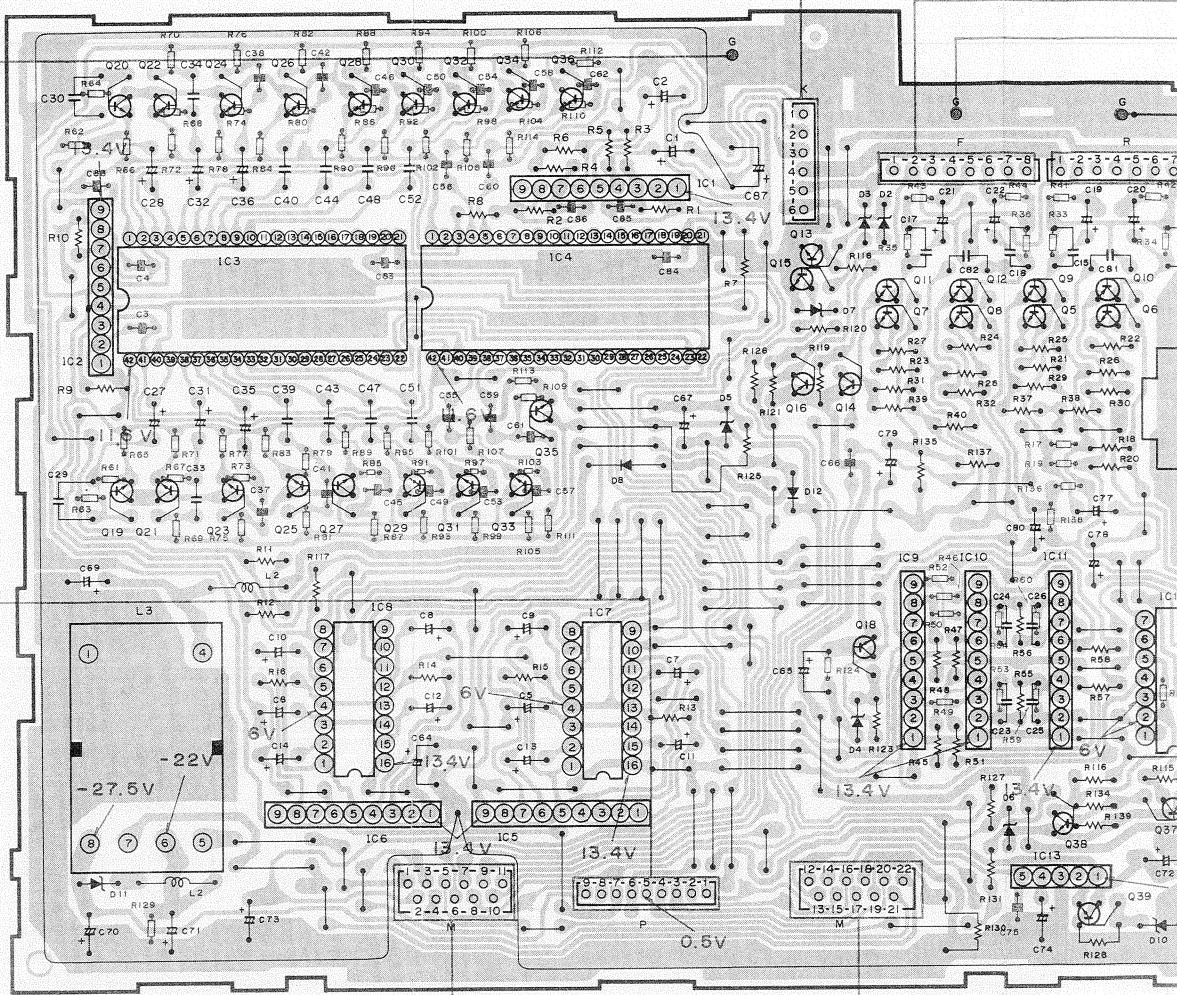
SUB UNIT



C

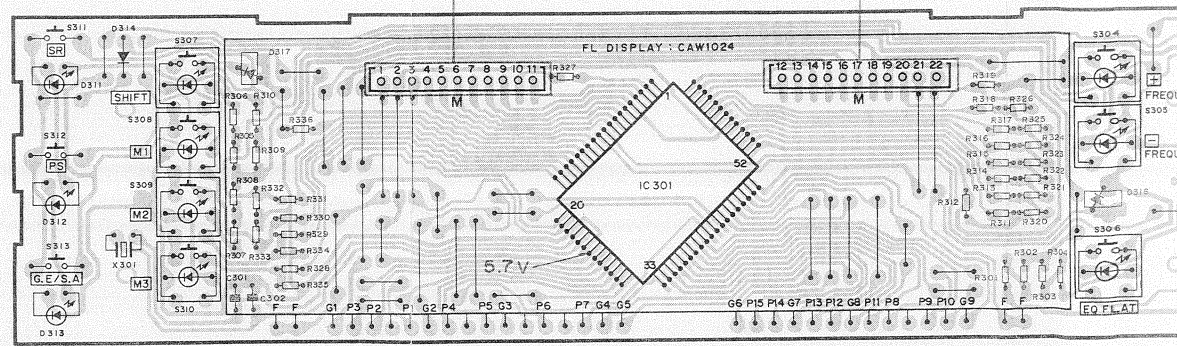
MAIN UNIT

Q, IC IC2 Q19 Q21 Q23 Q25 Q27 IC6 Q29 Q31 Q33 IC5 Q35 IC7 Q16 Q14 Q7 Q8 Q5 Q38 Q39 Q15 Q13 Q18 Q11 IC9 Q12 IC10 Q9 IC11 IC13



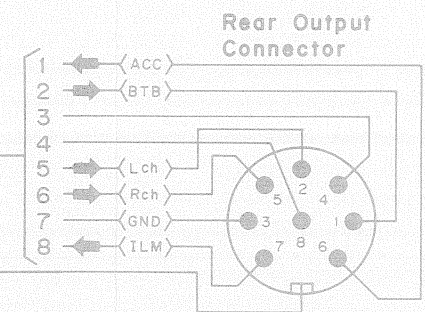
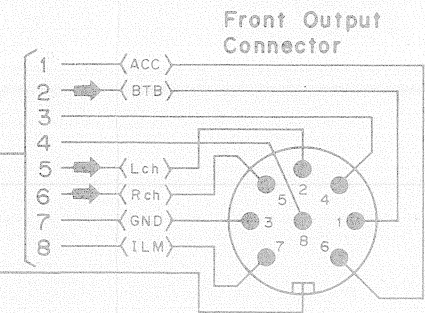
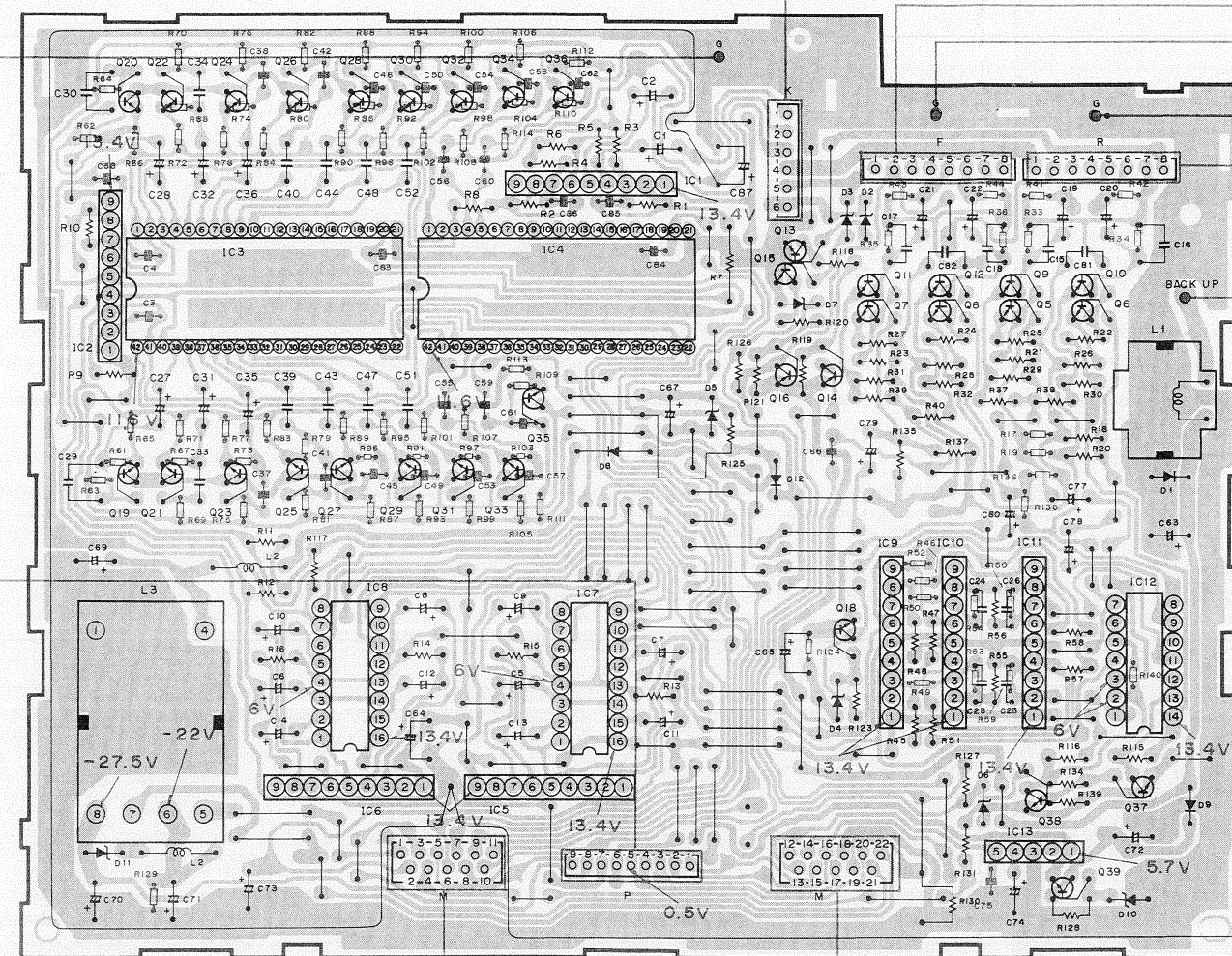
D

KEY BOARD UNIT



MAIN UNIT

Q, IC Q19 Q21 Q23 Q25 Q27 IC6 Q29 Q31 Q33 IC5 Q35 IC7 Q16 Q14 Q7 Q8 Q5 Q38 Q39 Q6 Q37
Q, IC IC2 Q20 Q22 Q24 IC3 Q26 Q28 IC8 Q30 Q32 Q34 IC4 Q36 IC1 Q15 Q13 Q18 Q11 IC9 Q12 IC10 Q9 IC11 IC13 Q10 IC12



KEY BOARD UNIT

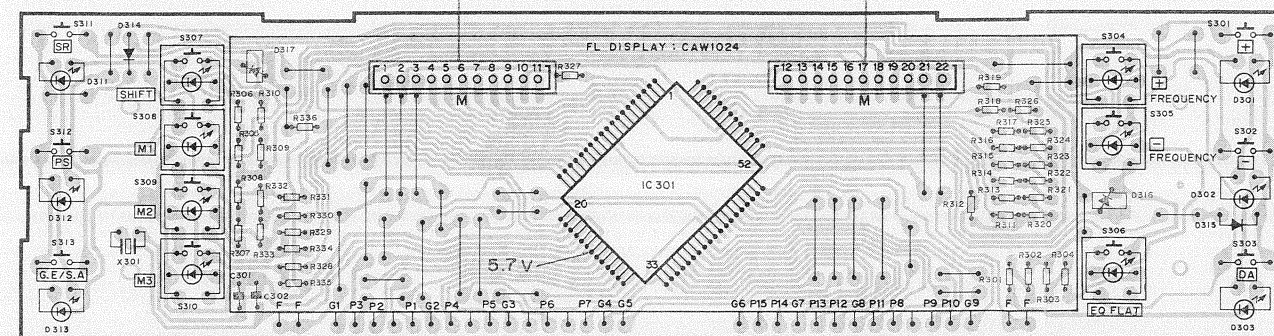
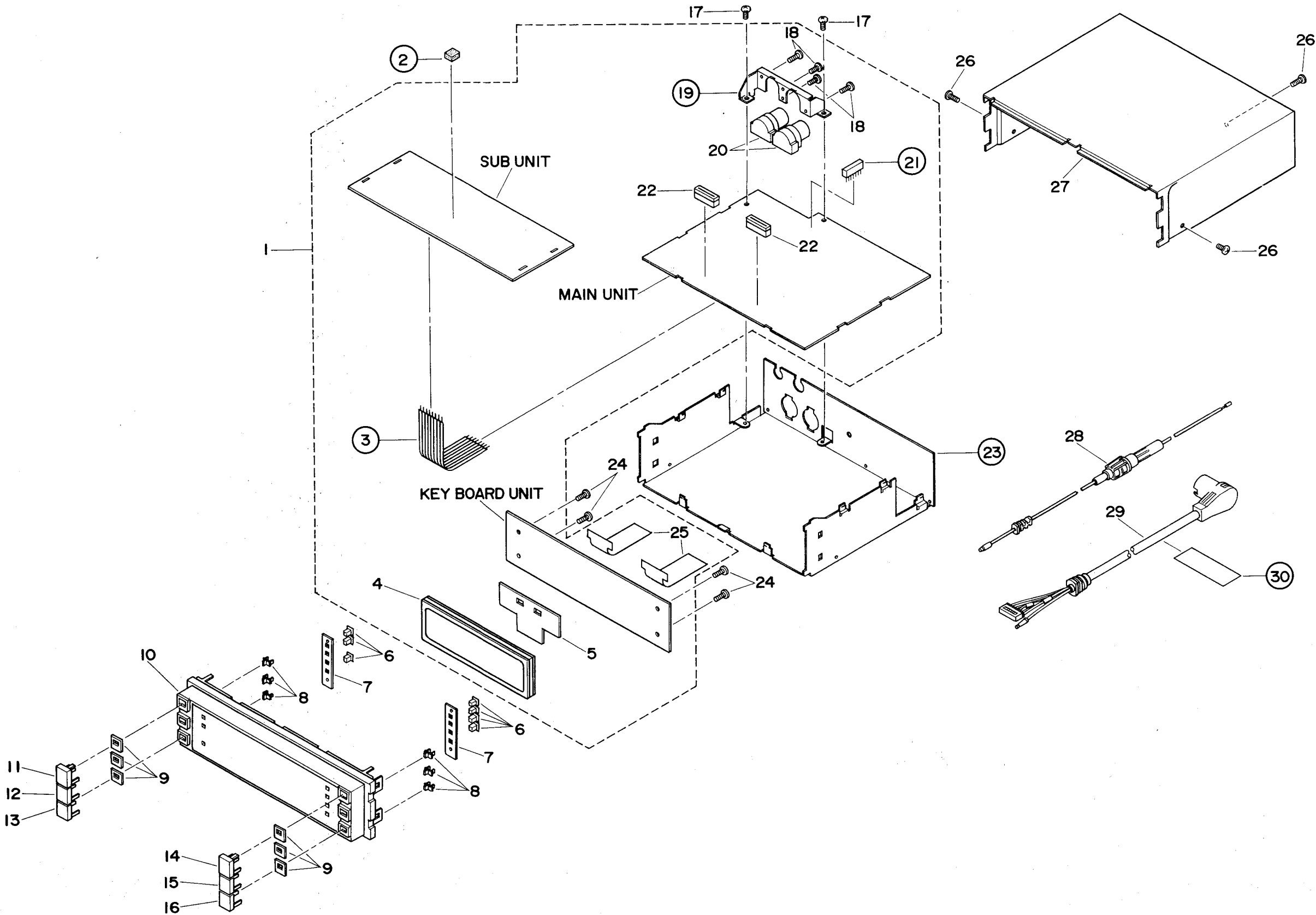


Fig. 7

7. EXPLODED VIEW

A
B
C
D



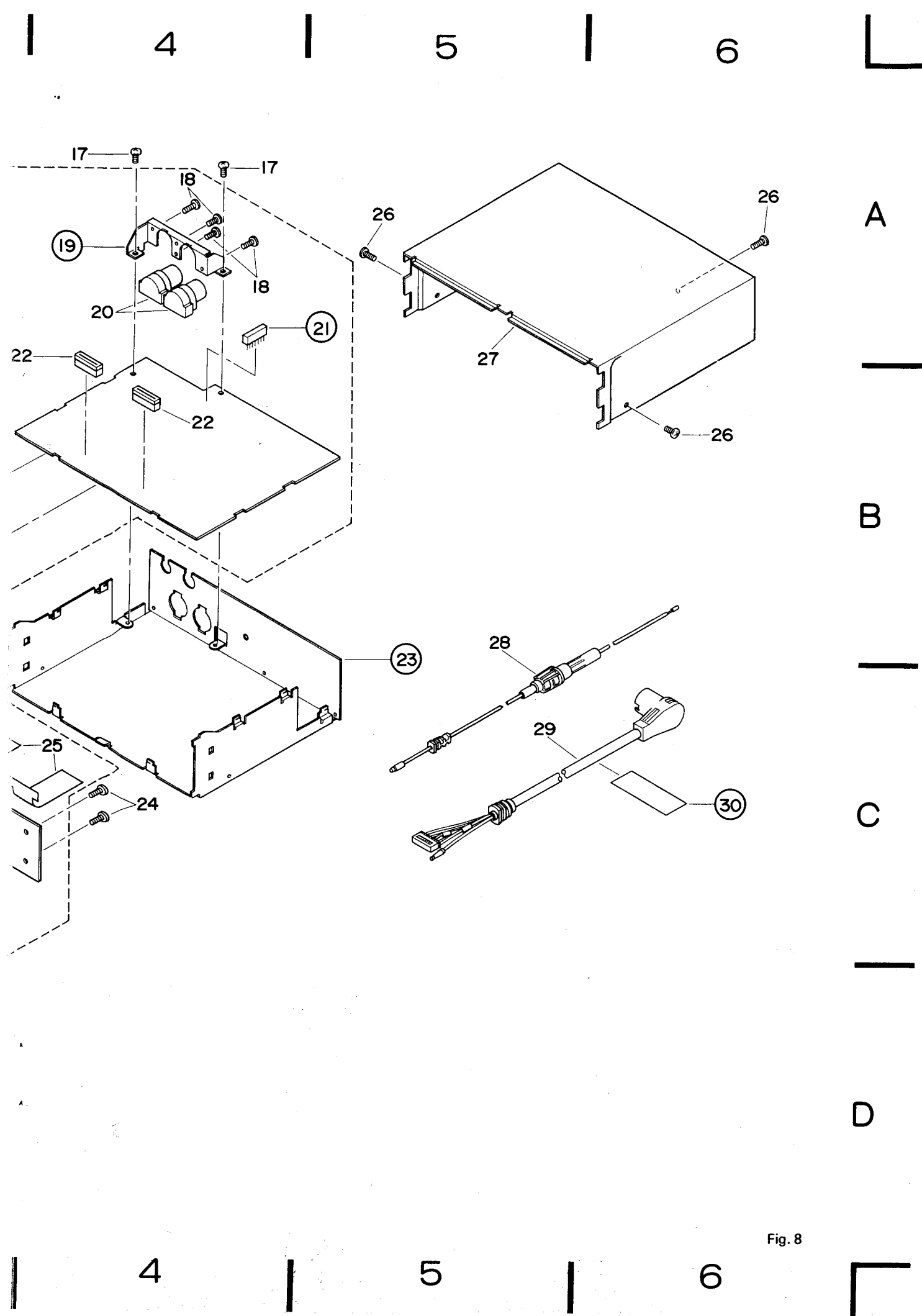
• Parts List

NOTE:

- For your Parts
★ ★ and ★.
★ ★: GENER
This classificat
number, temp.
• Parts whose p
• Parts marked l
longer than us

Mark No.	Part No.
1	CWX1068
2	
3	
4	CAW1024
5	CNM1553
★ 6	CAC1148
★ 7	CNM1552
★ 8	CNV1307
★ 9	CNM1100
★ 10	CXA1753
★ 11	CAC1460
★ 12	CAC1462
★ 13	CAC1464
★ 14	CAC1459
★ 15	CAC1461

Fig. 8



• Parts List

NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark No.	Part No.	Description	Mark No.	Part No.	Description
● 1	CWX1068	Graphic Equalizer Assy	★ 16	CAC1463	Button (G.E/S.A)
2		Cushion	17	BMZ30P060FMC	Screw
3		Connector	18	BMZ20P050FZK	Screw
4	CAW1024	FL Display	19		Bracket
5	CNM1553	Cushion	20	CKS1104	Connector
★ 6	CAC1148	Button	21		Plug
7	CNM1552	Cushion	22	CKS-397	Connector
8	CNV1307	Holder	23		Chassis
9	CNM1100	Cushion	24	BPZ20P060FMC	Screw
10	CXA1753	Grille Unit	25	CNP1484	P.C.Board
★ 11	CAC1460	Button (+)	26	BMZ30P050FZK	Screw
★ 12	CAC1462	Button (-)	27	CNB1137	Case
★ 13	CAC1464	Button (DA)	28	CDE1628	Connector
★ 14	CAC1459	Button (SR)	29	CDE1537	Connector
★ 15	CAC1461	Button (PS)	30		Label

Fig. 8

8. ELECTRICAL PARTS LIST

NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for CQS.)

CKS....., CCS....., CSZS.....

Graphic Equalizer Assy
Consists of
• Main Unit
• Sub Unit
• Key Board Unit

Unit Number :

Unit Name : Graphic Equalizer Assy

MISCELLANEOUS

Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.
** IC	1	2		NJM2068S	
** IC	3	4		TC9187AN	
** IC	5	6	9 10 11	μPC4570HA	
** IC	7	8		TC9176P	
** IC	12			TC4066BP	
** IC	13			M51954AL	
** IC	201			M51304L	
** IC	202			TC4051BP	
** IC	203			HA17358	
** IC	204	205 206 207 208 209 210 211 212		NJM4558S	
** IC	301			PD4122B	
** Q	5	6 7 8		2SC3113	
** Q	9	10 11 12		2SA1015	
** Q	13	15		DTC143ES	
** Q	14	16		2SA934	
** Q	18	37		2SC1740S	
				(2SC2458)	
** Q	19	20 21 22 23 24 25 26 27 28		2SC2458L	
** Q	29	30 31 32 33 34 35 36 38 39		2SC2458L	
** Q	201			2SA1048	
				(2SA933S)	
** Q	202			DTC143ES	
** Q	203			2SC1740S	
				(2SC2458)	
* D	1	9 12		ERA15-02VH	
* D	2	3		HZS6R8J82	
				(RD6R8JSB2)	
* D	4	10		HZS6R2J83	
				(RD6R2JSB3)	

Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.
* D	5				RD12JSB1
					(HZS12JB1)
* D	6	7 11			HZS5R6JB1
					(RD5R6JSB1)
* D	8				ERA15-02
* D	201 202 203 204 205 206 207 208 209 210				US1040M
					(1SS133)
* D	211 212 213 214 215 216 217 218				US1040M
					(1SS133)
* D	219				HZS7R5JB2
					(RD7R5JSB2)
* D	301 302 303 311 312 313			LED	SLR-320PG3KL
* D	314 315				US1040M
					(1SS133)
* D	316 317			Chip Diode	MA151K
L	1			Choke 1mH	CTH1005
L	2			Coil 100μH	CTF-113
L	3			Converter	CTX1011
L	4			Coil 1mH	CTF1026
X	301			Xtal	CSS1012
** S	301 302 303 311 312 313			Switch	CSG-255
** S	304 305 306 307 308 309 310			Switch(with LED)	CSG1016
				FL Display	CAW1024

RESISTORS

Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.
R	1	2			RD1/4PS752JL
R	3	4			RD1/4PS152JL
R	5	6 13 14 15 16 130			RD1/4PS224JL
R	7				RD1/4PM272J
R	8	9 10			RD1/4PS272JL
R	11	12			RD1/4PS223JL
R	17	136			RS1/8S474J
R	18	135			RD1/4PS474JL
R	19	138			RS1/8S334J
R	20	137			RD1/4PS334JL
R	21	22 23 24			RD1/4PS471JL
R	25	26 27 28			RD1/4PS681JL
R	29	30 31 32			RD1/4PS101JL
R	33	34 35 36 121			RS1/8S220J
R	37	38 39 40			RD1/4PS104JL

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.						
R	41	42	43	44	RS1/8S153J						
R	45	55	56	57	58	RD1/4PS682JL					
R	46	59	60			RS1/10S682J					
R	47	48	51			RD1/4PS222JL					
R	49	50	52	53	54	65	66	71	72	77	RS1/10S222J
R	61	62	67	68	73	74					RS1/10S181J
R	63	64									RS1/10S124J
R	69	70									RS1/10S823J
R	75	76									RS1/10S563J
R	78	83	84	89	90	95	96	101	102	107	RS1/10S222J
R	79	80	85	86	91	92	97	98			RS1/10S271J
R	81	82									RS1/10S333J
R	87	88									RS1/10S273J
R	93	94	99	100							RS1/10S183J
R	103	104	109	110							RS1/10S331J
R	105	106	111	112							RS1/10S223J
R	108	113	114								RS1/10S222J
R	115	116	117	126	127	128	139				RD1/4PS472JL
R	118										RD1/4PS122JL
R	119	123									RD1/4PS103JL
R	120										RD1/2VS681J
R	124										RS1/8S102J
R	125										RD1/4PS102JL
R	129										RS1/8S183J
R	131	134									RD1/4PS473JL
R	140	336									RS1/8S0R0J
R	201	275									RD1/4PS472JL
R	202										RD1/4PS103JL
R	203										RD1/4PS560JL
R	204	205									RD1/4PS102JL
R	206	274									RD1/4PS473JL
R	207										RD1/4PS182JL
R	208										RD1/4PS184JL
R	209	257									RD1/4PS823JL
R	210	217	224	231	238	245	251	258	265	271	RD1/4PS124JL
R	211	218	225	232	239	246	252	259	266		RD1/4PS151JL
R	212	219	226	233	240	247	250	253	260		RD1/4PS104JL
R	213	227									RD1/4PS393JL
R	214	228	262								RD1/4PS152JL
R	215	229									RD1/4PS154JL
R	216	223	230	237	243	244	273	277			RD1/4PS124JL
R	220	234	254	261							RD1/4PS333JL
R	221	235	255								RD1/4PS132JL
R	222	236	256	263							RD1/4PS134JL
R	241	248									RD1/4PS303JL
R	242	249									RD1/4PS122JL
R	264										RD1/4PS563JL
R	267	268									RD1/4PS104JL
R	269										RD1/4PS224JL
R	270	272	276								RD1/4PS223JL
R	301	302	303	304	309	310					RS1/8S391J
R	305	306	307	308							RS1/8S471J
R	311	312	313	314	315	316	317	318	319		RS1/10S104J
R	320	321	322	323	324	325	326	327	332	333	RS1/10S473J
R	328	329	330	331							RS1/10S222J
R	334	335									RS1/10S473J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.					
C	1	2	31	32	CEA010M50L2					
C	3	4	61	62	CKSQVB182K50					
C	5	6	7	8	9	10	CEA100M16L2			
C	11	12	13	14	CEA0R1M50L2					
C	15	16	17	18	CQMA183K50					
C	19	20	21	22	CEA100M16L2					
C	23	24			CQMA103K50					
C	25	26			CKCYB331K50					
C	27	28	77	78	79	80	CEA3R3M50L2			
C	29	30	33	34	CQFAH104J50L					
C	35	36			CEAR68M50LL					
C	37	38			CKSYB563K25					
C	39	40			CQFAH334J50L					
C	41	42			CKSYB333K50					
C	43	44			CQFAH184J50L					
C	45	46			CKSQVB183K25					
C	47	48			CQMA823K50					
C	49	50			CKSQVB153K25					
C	51	52			CQMA393K50					
C	53	54			CKSQVB822K50					
C	55	56			CKSYB153K50					
C	57	58			CKSQVB392K50					
C	59	60	235		CKSYB822K50					
C	63	72			2200 μ F/16V					
C	64				CCH1001					
					CEA102M16L2					
C	65	73			CEA471M10L2					
C	66	75			CKSYB473K25					
C	67				CEA330M16L2					
C	68	83	84		CKSYB102K50					
C	69				470 μ F/16V					
					CCH-114					
C	70	71			CEA221M35L2					
C	74				CEAR47M50L2					
C	81	82			CQMA473K50					
C	85	86			CKSQVB471K50					
C	87				CEA102M6R3L2					
C	201				CEA100M16L2					
C	202	211			CEAR47M50L2					
C	203				CEA010M50L2					
C	204				CKSYB102K50					
C	205	207	245		CEA101M10L2					
C	206				CEA330M16L2					
C	208				CKSYF104Z25					
C	209	210			CEAR15M50LL					
C	212	216	220	224	228	232	236	240	244	CEA2R2M50L2
C	213	214								CQMA823K50
C	215									CEAR22M50L2
C	217	218								CQMA473K50
C	219									CEA0R1M50L2
C	221	222								CKSYB223K50
C	223									CQMA683K50
C	225	226								CKSYB123K50
C	227									CKSYB333K50
C	229	230								CKSYB682K50
C	231									CKSYB153K50
C	233	234								CKSYB332K50
C	237	238								CKSYB152K50
C	239									CKSYB472K50
C	241	242								CKSYB821K50
C	243									CKSYB222K50
C	301	302								CCSCH330J50

9. PACKING METHOD

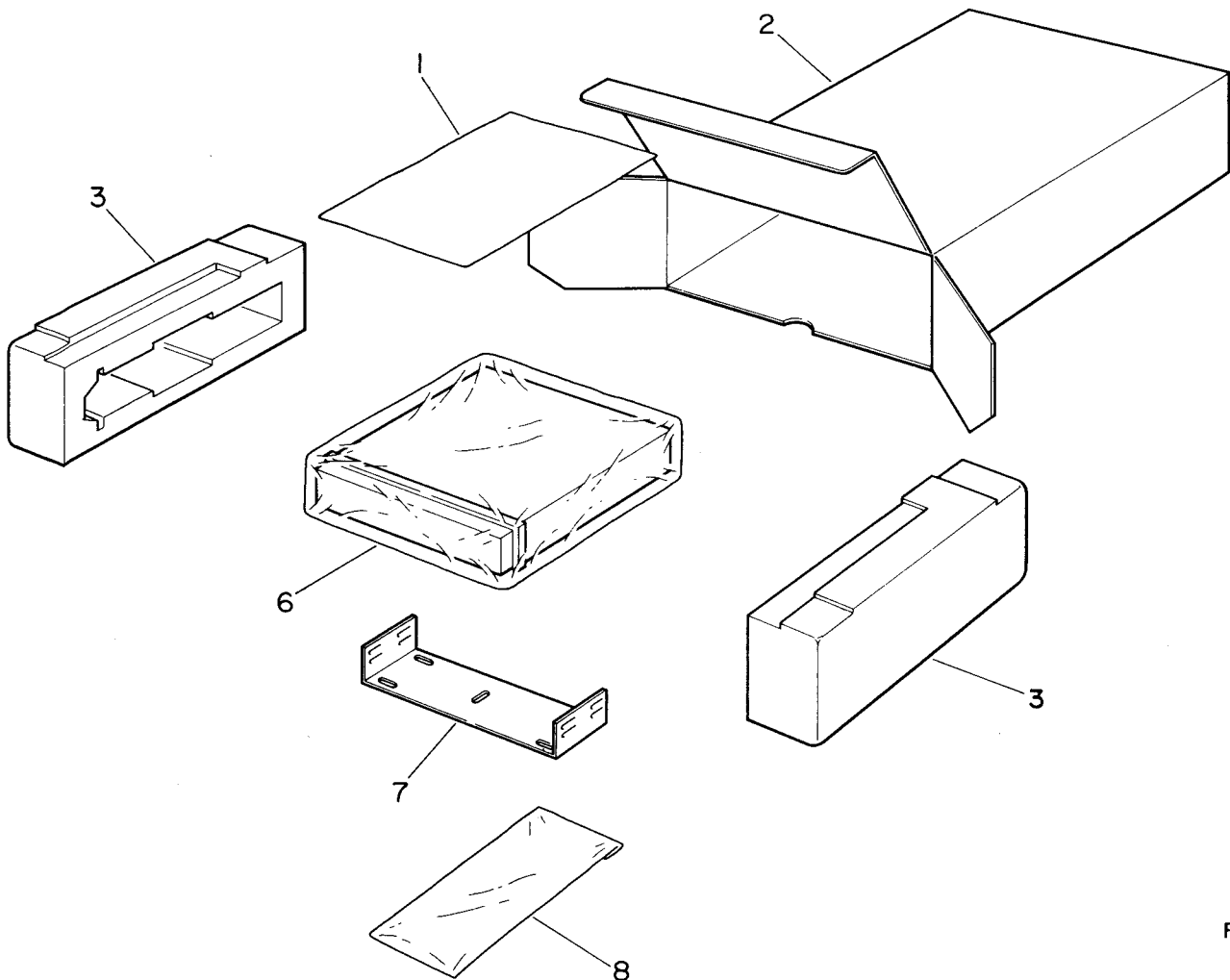


Fig. 9

• Parts List

Mark No.	Part No.	Description	Mark No.	Part No.	Description
1	CRD1135	Owner's Manual Card	8-2-1	CBA-102	Screw
2	CHG1341	Carton	8-2-2	HMF40P080FUC	Screw
3	CHP1021	Styrofoam	8-2-3	HMF40P080FZK	Screw
4,5		8-2-4	NF50PMC	Nut
			8-3		Double-sided Seal
6	CEG-114	Cover	8-4	CNF-111	Strap
7	CNB-723	Mounting Bracket	8-5	CNN-058	Spacer
8	CEA1119	Accessory Assy			
8-1	CDE1289	Cord			
8-2		Screw Kit			